

April 15, 2013

Ex Parte

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Connect America Fund*, WC Docket No. 10-90; *A National Broadband Plan for Our Future*, GN Docket No. 09-51; *High-Cost Universal Service Support*, WC Docket No. 05-337; *Developing an Unified Intercarrier Compensation Regime*, CC Docket No. 01-92; *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45

Dear Ms. Dortch:

On April 11, 2013, Greg Rogers of Bandwidth.com, Inc. (“Bandwidth”), Tamar Finn, of Bingham McCutchen on behalf of Bandwidth, Andrea Pierantozzi, Mack Greene, Michael Mooney, all of Level 3 Communications, LLC (“Level 3”) and I, on behalf of Level 3, met with Deena Shetler, Victoria Goldberg, Lynne Engledow, and Rhonda Lien, all of the Wireline Competition Bureau, Federal Communications Commission. In its ex parte letter of January 17, 2013, AT&T persists in defining the core functions of an end office local switch by what it is connected to, rather than by what it does. But the core function of an end office local switch cannot and should not rationally be defined by the lines to which it connects, but by the functions it actually performs in the network. The end office switch provides the intelligence surrounding the call—its set-up, conduct and take-down—which are the core functions of the end office switch, and should be the fundamental test for functional equivalency. That is what Level 3 and Bandwidth have argued to date, and that is what they continue to argue to be the proper way to apply the functional equivalence test in 47 C.F.R. § 51.903(c)(3).

Commission clarification that this is the proper application of the functional equivalency test will promote, not hinder, the transition to IP-based networks. IP-based networks require more than just last-mile transmission—which can be provided through the medium of Internet access facilities as this dispute demonstrates—but also an IP voice infrastructure to handle call set-up, routing, transport, interconnection and traffic exchange. Level 3 and Bandwidth provide that infrastructure, for their own operations in which they provide last mile transmission, for third party providers that furnish their own last-mile transmission (such as cable operators), and for “over-the-top” voice providers that use the end user’s already-purchased Internet access capacity as the medium for last mile transmission. Level 3 and Bandwidth’s interpretation of “functional equivalence” supports the deployment of this IP-based switching and transport infrastructure. At the same time, this interpretation will not slow the deployment of IP-based

loop facilities, as it does not alter the intercarrier compensation received by providers who deploy IP-based loop facilities.

Finally, we noted that the Commission has the ability to resolve this dispute over the application of current law and rules to fact pursuant to 47 U.S.C. § 1.2, without seeking further comment. Even after the Commission adopted the “VoIP Symmetry Rule”, this dispute has been vigorously debated in an open FCC docket, to which all interested parties have access through the Electronic Comment Filing System.

I. Call Set-up Intelligence, not the Provision of a Physical Connection to the End User, Defines the Core Function of an End Office Switch.

AT&T argues that the intelligence provided by the switch—call set-up, monitoring and take-down—is not the core function of the end office switch, but rather the end office is distinguished by “tak[ing] commingled calls from trunks, and select[ing] and plac[ing] the particular call for a particular end user onto the dedicated loop facility that directly connects the end office switch with that end user (and *vice versa*).”¹ But while describing an end office as the device that sat between a trunk and a loop was a convenient device in a traditional circuit switched network, that description did not capture the actual functions performed by the switch. In fact, the function on which AT&T fixates most directly—the connection to a loop—is not a function compensated through end office switching charges at all. That function is compensated by the common line rate elements.² By contrast, call set-up is unambiguously a function of the end office local switch, as set forth in 47 C.F.R. § 69.106. And it is a function that is provided by a CLEC and its over-the-top VoIP partner.

While 47 C.F.R. § 69.106 – the provision governing ILEC local switching access charges—does not contain a comprehensive definition of local switching functionalities, it provides some indication of core functions—which AT&T ignores. Indeed, in its 17-page single spaced letter, AT&T never once examines Section 69.106. Section 69.106(g) clearly indicates that call set-up is a core function of a local switch, as it permits of an incumbent LEC to create a call setup charge to recover “signaling costs associated with call set up.” Moreover, call set-up includes call set-up and tear-down functions not only on the originating LEC’s side of a call, but also on the terminating LEC’s side of the call, as subsection (g) permits the charge to be assessed both “on originating calls handed off to the interexchange carrier’s point of presence” and “on terminating calls received from an interexchange carrier’s point of presence.” Furthermore, in order for this signaling to occur, the switch necessarily must perform the call set-up and take-down itself. For all of its bluster, AT&T does not dispute that it is the end office switch that actually conducts call set-up and take-down, including, on the terminating side, indicating to the

¹ Letter from David Lawson, Attorney, AT&T Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission, at 6, WC Docket Nos. 10-90 et al., (filed Jan.17, 2013) (“AT&T Ex Parte”).

² See *infra* at Section II & n.3. See also *AT&T Corp. v. Bell Atlantic*, Memorandum Opinion and Order, FCC 98-321, 14 FCC Rcd. 556 (1998).

called party that they have an incoming call (usually by signaling ringing) and also monitoring the call and informing the upstream caller's carrier (and thus the calling party) when the called party has terminated the call.

The function of placing a call onto a loop, however, is not encompassed within 47 C.F.R. § 69.106. As of 1997 for price cap LECs and 2000 for rate-of-return LECs, costs for the line port—and hence charges for the line port functionality—were explicitly reassigned from local switching to common line and recovered through the combination of the End User Common Line Charge and Carrier Common Line Charge.³ As such, the line port function cannot be a core function of the local switching charge.

AT&T's focus on placing a call on a "dedicated loop facility" also fails because it is too narrow to encompass the full range of modern networks. In past days when a switch was connected through the cross-connect frame to the twisted pair coming from the subscriber's premises, the concept of a "dedicated loop facility" might have encompassed all network configurations. But that era is long past – if it ever existed.⁴ Today, end office switches can connect with the customer through a variety of media, many of which are not dedicated to a single end user even if the call bits are coded so that they can only be received by a single user.

As an example, in a cable telephony system, a call is not placed on a dedicated wire bound for a single end user. In this case, it is transmitted to the households served from a particular node, with the cable modem and terminal equipment selecting the bits that make up the call bound for that called party. The call is addressed so that it can be decoded only by a single user, but it is not transmitted solely to a single user.

Similarly, consider a fixed wireless "local loop." In that case, although the switch identifies the end user so that a call can be coded for receipt solely by that end user, there is no dedicated loop facility. The call instead is transmitted from the end office to the end user by as undifferentiated a medium as you can find—the electromagnetic spectrum—which can be reused among users.

³ See *Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges*, First Report and Order, FCC 97-158, 12 FCC Rcd. 15,982, ¶ 125 (1997) (assigning line port recovery to Common Line rate elements)("1997 Access Reform Order"); *Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, Second Report and Order and Further Notice of Proposed Rulemaking, *Federal-State Joint Board on Universal Service*, Fifteenth Report and Order, *Access Charge Reform for Incumbent Local Exchange Carriers Subject to Rate-of-Return Regulation, Prescribing the Authorized Rate of Return From Interstate Services of Local Exchange Carriers*, Report and Order, FCC 01-304, 16 FCC Rcd 19,613, ¶¶ 90-91 (2001)("MAG Order") (moving recovery of line ports to common line for rate-of-return carriers).

⁴ For example, party lines were not dedicated to a specific end user.

An over-the-top VoIP call similarly encodes the call so that it can be uniquely received by the end user, but then delivers that call to the end user by means of a medium that is shared with many other users—the Internet. Notably, that medium—Internet access—is procured by the end user, who obtains the ability to both receive and send communications, not just to send communications (as would be the case in a “sender pays” regime such as the PSTN). So AT&T cannot claim that the ISP is not compensated for the “use” of its Internet access facility.

At bottom, AT&T’s argument falls back to the asserted requirement that to be providing end office switching, a carrier must also be providing last mile transmission to reach the end user, even when the end user has already purchased the full use of that last mile transmission facility.

Further demonstrating that switching intelligence, and not the provision of a physical “loop” is the test for the core functions of an end office switch, AT&T’s proposed definition of a switch as simply “tak[ing] commingled calls from trunks, and select[ing] and plac[ing] the particular call for a particular end user on to the dedicated loop facility that directly connects the end office switch with that end user (and *vice versa*),” could also be describing a remote terminal. Remote terminals also have high capacity lines on one side, which carry commingled traffic bound for multiple end users and dedicated customer lines on the other. AT&T’s definition does not provide a ready means of distinguishing the switch from the remote terminal in its focus on connecting to the loop. Level 3 and Bandwidth’s focus on call set-up, in contrast, clearly separates the end office switch from the remote terminal, as well as the end office switch from the tandem switch. Tandem switches – the charge which is what AT&T says should apply to the functions performed by CLECs and an over-the-top VoIP partner – do not provide any of the call set-up and takedown intelligence that is critical to establishing a telephone call.

AT&T argues that Level 3 and Bandwidth are proposing a core functionality of local switching that would sweep in the peer-to-peer communications facilitated by *Pulver.com*.⁵ That argument ignores the critical context of the communication. *Pulver.com* could never have been performing local switching for the purposes of access charges because it was not interconnected with the PSTN. With neither end of that communication entitled to receive access charges, there was no access charge symmetry to address. Moreover, Level 3 and Bandwidth both do provide transmission, so their provision of call set-up, supervision and management is clearly part of a “telecommunication,” unlike the situation considered in *Pulver.com*.⁶

Finally, AT&T is wrong when it suggests that Level 3 and Bandwidth are suggesting a test for functional equivalence analogous to CLECs levying end office access charges for

⁵ See *Petition for Declaratory Ruling that Pulver.com’s Free World Dialup is Neither Telecommunications Nor a Telecommunications Service*, Memorandum Opinion and Order, FCC 04-27, 19 FCC Rcd. 3307 (2004).

⁶ See *id.* at 3312, ¶ 9.

functions performed by CMRS carriers.⁷ AT&T ignores the fact that when a long distance call is terminated to a CMRS provider after passing through a CLEC, it is the CMRS provider, not the CLEC, that is performing the critical call set-up and take-down functions. The CMRS provider, not the CLEC, determines who the called party is, and addresses the traffic for receipt and decoding by the called party. In that situation, the CLEC is fulfilling the role of a tandem provider—passing traffic from one interconnecting carrier to another—and thus the Commission in that situation limited the CLEC to assessing tandem switching charges and precluded the assessment of end office charges. The FCC’s treatment of CLEC access charges in the context of calls terminating to CMRS providers does not inform the treatment of calls terminating to VoIP customers, where the over-the-top VoIP provider, like a last-mile facilities-based VoIP provider that is not itself a telecommunications carrier, must partner with a CLEC in order to interconnect with all telecommunications carriers and to obtain telephone numbers, and where the over-the-top VoIP provider, like the last-mile facilities-based VoIP provider, performs call set-up and take-down in combination with its CLEC partner.⁸

Level 3 and Bandwidth’s proposal to look to where the call set-up, supervision and management functions are performed flows naturally from the call itself. When an end user seeks to place a call in a traditional PSTN network, some piece of equipment in the network must determine that the subscriber is seeking to place a call. That function is performed by the end office switch. The call must then be received and processed so that it can be sent through the network for delivery. That receipt and processing function is performed by the end office switch. On the terminating end, some part of the network alerts the called party that someone is trying to set up a call. That function is also performed by the end office switch. And some part of the legacy network monitors the call to determine when the call terminates so that the communications path can be broken and the other party alerted that the call is over. Without these functions performed by the end office switch, there could be no call of any type, whether intraswitch, intraexchange or interexchange. Regardless of the underlying technology, these functions are the unique functions of the end office, and are performed nowhere else in the network, irrespective of the nature of whether the wires connected to the subscriber’s side of the switch are high capacity facilities or a single twisted pair. It is these functions that distinguish the end office switch from tandem switches and interexchange switches. These are functions that Level 3 and Bandwidth (and other similarly-situated CLECs) perform together with their over-the-top VoIP partners, for which the VoIP Symmetry Rule and the *USF/ICC Transformation Order* permits them to be compensated through access charges “regardless of whether the functions performed or the technology used correspond precisely to those use under a traditional TDM architecture.”⁹ By tying compensation to the provision of the physical facility used to transmit into the subscriber’s premises, AT&T is trying to impose a requirement that

⁷ See AT&T Ex Parte at 10.

⁸ See Federal Respondents’ Uncited Response to the Joint Preliminary Brief of the Petitioners, at 16-18, FCC 11-161, No. 11-9900 (filed Feb 6, 2013); *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161, 26 FCC Rcd. 17,663, 18,026 n. 204 (2011) (“*USF/ICC Transformation Order*”).

⁹ *USF/ICC Transformation Order*, at 18,026 ¶ 970.

these functions be performed in a manner that “corresponds precisely” to the traditional TDM architecture.

II. Transmission “Burden” Is Relevant to Loop Charges Such as Carrier Common Line Charges; It Is of Not Relevant to End Office Switching.

In an effort to buttress its case, AT&T describes a hypothetical call from its long distance customer in New York to a called party with a Seattle, Washington telephone number assigned or ported to Level 3, and hence provided to an over-the-top VoIP provider. AT&T posits that the called party is nomadically located in Los Angeles, notwithstanding the Seattle number. In the first instance, it bears pointing out that AT&T is using a call scenario that occurs rarely in order to try to prove its point. In Level 3’s and Bandwidth’s experience, the vast majority of calls are terminated in the same general geographic area as the number to which it is rated.

While AT&T claims that it does more “work” in this scenario, it fails to connect this “work” with local switching access charges. The networks over which AT&T is disputing access charges for calls delivered in conjunction with over-the-top VoIP partners are Level 3’s and Bandwidth’s CLEC networks that handle a variety of traffic, including calls that terminate over wireline facilities provided by Level 3 and Bandwidth, or by last-mile facilities-based providers such as cable operators. In those cases, it is clear under AT&T’s arguments that it must pay terminating access, even though these switches cover a large region, as has historically been the case.¹⁰ Level 3, for example, has only 125 end office switches nationwide, which subtend only 5 regional tandems. Level 3 and Bandwidth do not get to charge more because their end offices cover a larger area (and thus they must do more “work” to connect the end office to the end user), nor do they get less because they do not carry traffic into a small neighborhood before performing end office switching. In point of fact, the end office access charges do not change according to network topology, the geographic size of the area served, or the number of fiber miles of loop or transport plant. There is no connection between “work” and end office switching: loop and transport costs are recovered not through the end office switching charge, but through separate loop and transport charges.

To the extent that AT&T is insinuating that Level 3, Bandwidth and their over-the-top VoIP partners are somehow “free-riding” on their investment in ISP facilities and networks, that is also incorrect. As AT&T well knows, the economic structure of ISP services is very different from the PSTN. With ISP services, the end user subscribes to the ability to both receive and send Internet traffic, rather than following the PSTN’s calling-party-pays model. The AT&T ISP’s transport haul from (and to) its backbone peering point is recovered through its charges to its ISP customer.¹¹ In particular given the wide variability in backbone interconnection

¹⁰ The *USF/ICC Transformation Order* itself recognizes that jurisdictional boundaries are less relevant in IP networks (§ 793) and the NPRM asks questions that imply carriers will establish fewer interconnection points (typically associated with switches) under IP-IP interconnection (§ 1372).

¹¹ Of course, AT&T has also hypothesized the longest possible backhaul from the peering point. In some cases, as is the case between Level 3 and AT&T, the parties do not use “hot

arrangements, it would be nearly impossible—and certainly would lead to arbitrary differences—to try to capture transmission “burden” in analyzing what constitutes the core functionality of an end office switch. The Commission should ignore AT&T’s unprecedented “burden” standard.

III. Level 3’s and Bandwidth’s View of the Equivalent of Functions Covered by 47 C.F.R. § 69.106 Charges Will Not Discourage the Creation of and Migration to IP Networks.

The CAF Order adopted the VoIP symmetry rule in part to promote investment in and deployment of IP networks, as well as to protect the interests of those providers that have already made such investments.¹² As the *USF/ICC Transformation Order* recognizes, IP networks are made up of softswitches¹³ and SIP signaling capabilities¹⁴ in addition to the physical lines and trunks that carry IP traffic.

To transition the PSTN to IP networks, carriers must make investments in these softswitches, SIP signaling, and interoffice trunks to interconnect with both other IP network-based providers and with customers on the TDM PSTN, irrespective of whether they will be used for traditional TDM connections to the end user, or for IP-IP interconnection with either facilities-based VoIP or over-the-top VoIP providers. These facilities are not single-purpose facilities dedicated solely to the handling of over-the-top VoIP, but also serve traditional TDM loops (including a loop-transport UNE combination) and last-mile facilities-based VoIP transmission media. Permitting recovery of this common investment when traffic is bound for an end user served by a last-mile facilities-based VoIP provider but not when traffic is bound for an end user served by an over-the-top VoIP provider creates an artificial distinction that can only serve to slow the transition to IP networks and IP-IP interconnection because some portion of the use of those common switching and transport facilities will be compensated at a different, and lower, rate. Endorsing such artificialities discourages, rather than promotes full and efficient usage of these IP-based switching facilities.

There is no policy reason to require that a provider of end office switching be physically connected to a loop in order to promote investment in IP networks. In many cases, the loop will simply be another high capacity facility, rather than a twisted pair solely dedicated to the called

potato” routing. Level 3 and AT&T, for example, can exchange Internet traffic in Los Angeles, San Jose and Seattle, and AT&T dictates where Level 3 delivers that traffic. It also bears pointing out that AT&T has not described the actual call path that would occur with respect to the New York to Los Angeles call to a Level 3 number that it describes. Even with a Seattle telephone number, the call would be routed to Los Angeles, which is where Level 3’s tandem for the western states is located. The media path would then flow to the Internet under whatever arrangements were in place with either the over-the-top VoIP partner, or between Level 3 and AT&T, to reach the Los Angeles called party.

¹² See *USF/ICC Transformation Order*, at 18,025 ¶ 968.

¹³ See *id.* at 17,926 ¶ 783.

¹⁴ See *id.* at 17,893 ¶ 708, 18,134 ¶ 1366.

party's use; or, as discussed above, it could be a shared facility that uniquely codes traffic for a specific end user. Moreover, as previously discussed, end office switching is not structured to recover loop costs, nor does it even include line port costs, as line ports have been shifted to loop charges.¹⁵ End office switching recovers the cost of switching hardware and software, not transmission lines. If the FCC wants to encourage investment in IP switches it needs to provide compensation for all such investments.

Furthermore, interpreting current rules to allow CLEC-Over-the-Top VOIP partnerships to charge for end office switching will not reduce a last-mile facilities-based provider's incentives to migrate from TDM to IP. The amount of access charges that a last-mile, non-CMRS facilities-based provider can receive will not change. That provider will continue to be able to charge terminating access whenever it terminates an interexchange call, whether it is operates a TDM or an IP-based network.

Nor does our application of the functional equivalence standard create disincentives for last-mile providers to deploy IP-based last mile facilities. In the first instance, the deployment of IP-based last mile facilities will be driven by the competition between those providers in the vast majority of areas in which traditional telephone company networks overlap with traditional cable company networks. In any event, the best result for any economic development is to distort the market to the least extent possible, which in this case means for access charges to be paid based on who performs the critical intelligence of the call, not the labels applied to the wires between which it sits. Making it clear that CLEC Over-the-Top VOIP partnerships can assess access charges for the switching functions and call intelligence they provide, in the same manner as last-mile facilities-based VoIP providers and TDM-based voice providers benefits consumers by keeping Over-the-Top and other voice services comparable. This allows for more end user price competition. These additional competitive alternatives for voice service increase the value for broadband Internet access service, thus increasing consumer demand for that service.

¹⁵ Letter from John Nakahata, et al., Level 3 Communications and Bandwidth.com, to Marlene H. Dortch, Federal Communications Commission, at 2-3, 9-10, WC Docket Nos. 10-90 et al. (filed Sept. 10, 2012).

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Accordingly, interpreting the current rules to permit CLEC-Over-the-Top VOIP partnerships to charge for end office switching allows for more investment in development of innovative IP applications.

Sincerely,



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